AIR FORCE

REDUCTION IN... TOTAL OWNERSHIP COST

POCKET GUIDE

MARCH 1999

TO TABLE OF CONTENTS

TABLE OF CONTENTS

1. PURPOSE

This Pocket Guide provides managers a quick reference for R-TOC information and definitions as well as a checklist consisting of questions to evaluate your R-TOC program. The Pocket Guide is not designed as a stand-alone document, rather, it should be used in conjunction with the R-TOC Guidebook. The R-TOC Guidebook can provide more helpful information on R-TOC strategies. Copies of the R-TOC Pocket Guide, Guidebook and other information can be found on the R-TOC web site at ***www.rtoc.drc.com***.

Back to Table of Contents

2. R-TOC DEFINITIONS

DOD TOC:

The sum of all financial resources necessary to organize, equip, train, sustain, and operate military forces sufficient to meet the national goals in compliance with all laws, all policies applicable to DoD, all standards in effect for readiness, safety and quality of life, and all other official measures of performance for DoD and its components. DoD TOC is comprised of costs to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment and real property, the costs to recruit, train, retain, separate and otherwise support military and civilian personnel, and all other costs of business operations of the DoD.

DEFENSE SYSTEMS TOC:

The first dimension of the Air Force R-TOC strategy. It equates to Life Cycle Costs.

LIFE CYCLE COSTS: (per DoD 5000.4M)

It includes not only acquisition program direct costs but also the indirect costs attributable to the acquisition program (i.e. costs that would not occur if the program did not exist). For example, indirect costs would include the infrastructure that plans, manages, and executes a program over its full life and common support items and systems.

RESOURCES TO OPERATE:

The second dimension of the Air Force R-TOC strategy. It includes the costs to operate which encompasses infrastructure and force structure costs that cannot be directly attributable to weapon systems.

OPERATIONAL CONCEPTS:

The third dimension of the Air Force R-TOC strategy. It includes costs driven by specific concepts such as the Air Expeditionary Force.

NET PRESENT VALUE (NPV):

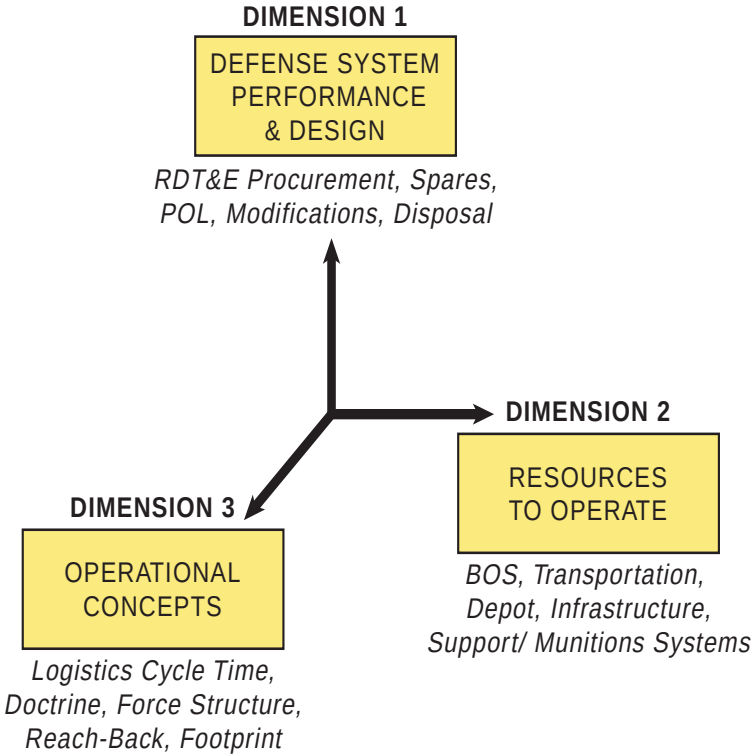
NPV is derived by adjusting the cash flows by year times a percentage adjustment that reflects the cost of the United States Treasury to borrow money. Rates are published in OMB Circular A-94 and are updated annually in February.

RETURN ON INVESTMENT (ROI):

ROI is calculated by dividing the total discounted cost savings/avoidance by the total discounted investment in constant year dollars.

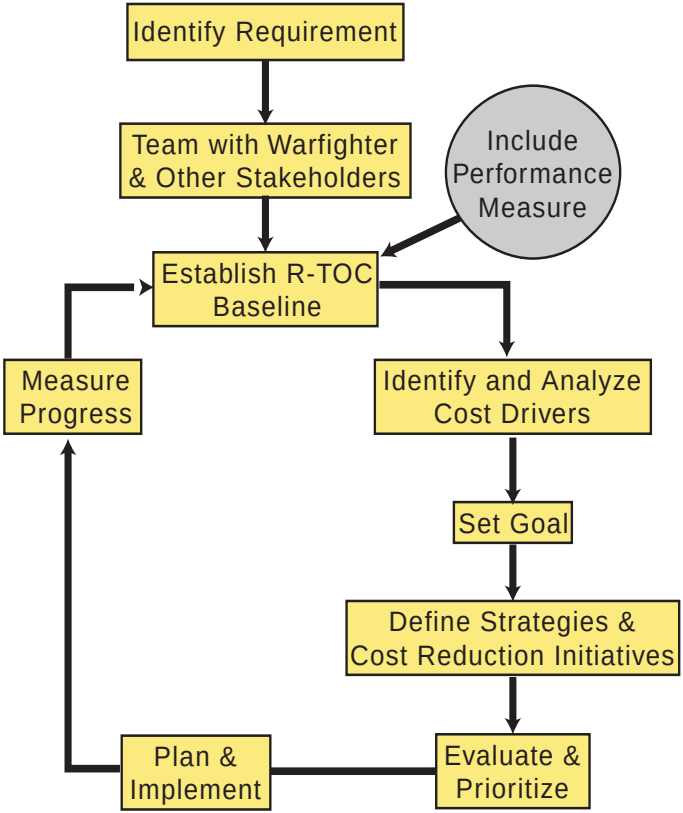
BACK TO TABLE OF CONTENTS

3. THREE DIMENSIONS OF TOC



Back to Table of Contents

4. R-TOC IMPLEMENTATION PROCESS



Back to Table of Contents

5. QUESTIONS THAT CAN HELP

A. IDENTIFY REQUIREMENTS

Organizations must first identify requirements for cost reduction. For example, at the DoD level, the requirement to reduce TOC is driven by the need to provide $60 billion for weapons system modernization.

1. How well is my organization performing against established standards?
2. Is there a need for change?
3. What is the need?

B. TEAM WITH WARFIGHTER AND OTHER STAKEHOLDERS

It is critical that all individuals and organizations that have a hand in the process, have the chance to participate in cost reduction initiatives. If not, then you will lose valuable input and it is a sure bet the initiative will stall before it has a chance to get off the ground.

1. Who are the individuals inside your organization who are involved in the process?

2. Which organizations outside your own who have a role in the process?
    a. Consider those that are not only directly involved but those that areaffected by the process.
    b. Consider those organizations that provide input as well as those that receive output.
    c. Consider those from other weapon systems, MAJCOMs, Air Staff, services and countries.

C. ESTABLISH AN R-TOC COST & PERFOMANCE BASELINE

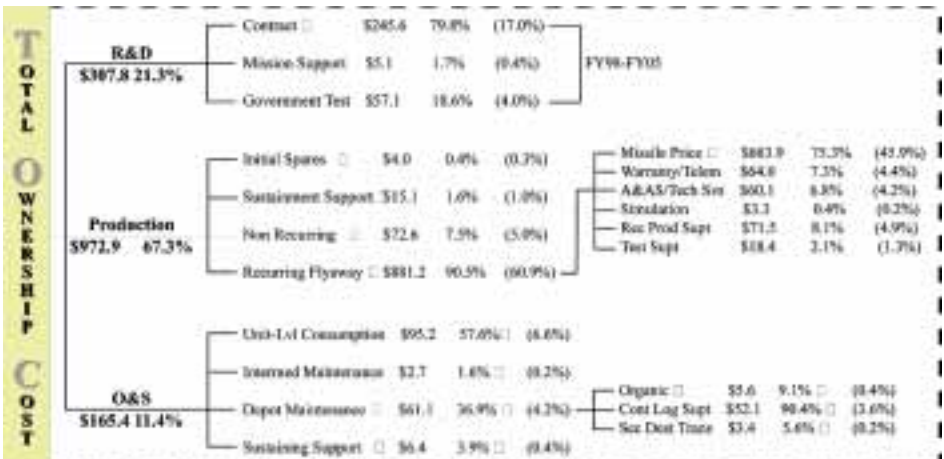
The baseline establishes a foundation from which change can be effectively measured.

1. Does your baseline represent a one year snap shot?
2. Does the baseline include not only cost data but performance metrics, such as MC rates, fill rates, quality assurance standards, spare engine status, departure times, logistics foot print?
3. Do the baseline performance metrics ad equately gauge your unit's performance?

4. What sources of information were used to establish the performance baseline? (Check the Multi-Echelon Resource and Logistics Information Network (MERLIN) and System Executive Management Report (SEMR) for performance data. For information on establishing a MERLIN/SEMR account via the Internet go to ***www.merlin.drc.com***)
5. Has a method been developed to display the performance data graphically?
6. What sources were used to establish thecost baseline? (Check the Air Force Total Owner ship Cost (AFTOC) database at: ***www.aftoc.tasc.com***. AFTOC provides cost information about Air Force weapon systems by consolidating data from the Force and Financial Planning database and the Visibility and Management of Operating and Support Costs database.)
7. Do the metrics identify the program thresholds?
8. Has a method been chosen to depict the cost data graphically (Try using a Comb Chart. Check out R-TOC web page tools section.)?

Click here to view the Comb Chart

Comb Chart


TOTAL OWNERSHIP COST
R&D
$307.8 21.3%
Contract $245.6 79.8% (17.0%)
Mission Support $5.1 1.7% (0.4%)
Government Test $57.1 18.6% (4.0%)
FY98-FY05
Production
$972.9 67.3%
Initial Spares $4.0 0.4% (0.3%)
Sustainment Support $15.1 1.6% (1.0%)
Non Recurring $72.6 7.5% (5.0%)
Recurring Flyaway $881.2 90.5% (60.9%)
Missile Price $883.9 75.3% (45.9%)
Warranty/Telem $64.0 7.3% (4.4%)
A&AS/Tech Svc $60.1 6.8% (4.2%)
Simulation $3.3 0.4% (0.2%)
Rec Prod Supt $71.5 8.1% (4.9%)
Test Supt $18.4 2.1% (1.3%)
O&S
$165.4 11.4%
Unit-Lvl Consumption $95.2 57.6% (6.6%)
Intermed Maintenance $2.7 1.6% (0.2%)
Depot Maintenance $61.1 36.9% (4.2%)
Sustaining Support $6.4 3.9% (0.4%)
Organic $5.6 9.1% (0.4%)
Cont Log Supt $52.1 90.4% (3.6%)
Sec Dest Trans $3.4 5.6% (0.2%)

D. IDENTIFY AND ANALYZE COST DRIVERS

Figuring out which factors drive your program's total ownership costs is a key element to success. Once cost drivers are identified and analyzed then significant cost reduction initiatives can be developed to target those high cost areas.

1. What are the drivers? Look at the percentage of TOC for each cost element. A Comb Chart and Pareto analysis can help.
2. Why are costs high in certain areas?
    a. What can be done?
    b. Who can do it?
3. Where have costs fluctuated significantly?
4. Which costs are related to the flying program?
5. Which costs appear to be "fixed"?
6. How do the costs compare against similar programs?

E. SET GOALS

Goals should represent the cost reduction initiatives desired outcome. Both cost reduction targets and performance requirements must be included.

1. What goals have been established?
    a. Do they have a reasonable chance of being obtained (avoid the solving world hunger syndrome)?
    b. Are the goals quantifiable?
    c. How do you measure progress?
    d. Have all the stakeholders had an opportunity to participate in establishing the goals?
2. Have milestones been established?
    a. Are the milestones quantifiable?
    b. What are the milestones?

F. DEFINE COST REDUCTION STRATEGIES

R-TOC targets both processes and products. As a result, all reasonable cost cutting ideas should be considered. Any activity or requirement that provides no, or low, value added to the process/product should be carefully scrutnized for tailoring or elimination.

1. Have specific areas been targeted for cost reduction?
2. Have all the activities in the process been identified?
    a. What impact on the overall process does each activity have?

   b. What techniques were used to analyze the process and the activities impacts (Process Flow/Deployment Technique, Activity Modeling, Activity-Based Costing, Simulation, Value Stream Analysis etc.)?
   c. Did each of the stakeholders have an opportunity to identify the activities in their portion of the process?
3. Have all management functions been identified?
   a. Is there duplication of effort?
   b. Can some functions be performed better by outside sources?
4. Have alternative acquisition strategies been considered; such as schedule compression, lease versus purchase, multi-year procurment, reclamation and reuse, performance specifications and complementary warranties, use of Commercial Off-The Shelf items, Total System Performance Responsibility (TSPR) contracts?
5. Have trade-off studies been conducted to determine the impact of proposed changes?

a. Do the changes provide a significant improvement?
b. Is the improvement measurable?
c. Does the change enhance or degrade other areas in the process?

6. Have hardware and software designs been examined?
    a. Have opportunities for simplification, improved workflow, and commercial technology insertion been considered?
    b. Is producibility a factor in the process?
7. Has new technology been evaluated such as electronic testing technology, built-in-test capabilities, electronic technical guides, training simulators?
8. Have alternate support strategies been considered such as Contractor Logistics Support (CLS), Direct Vendor Delivery (DVD), use of commercial infrastructure or repair and replenishment of COTS items, regional repair and two-level organic maintenance?

G. EVALUATE AND PRIORITIZE

There are never enough resources to do everything, therefore careful evaluation and prioritization of cost reduction initiatives is important.

Establish different categories. They may include those ideas with a near term impact and little investment, or those that require significant investment and have large payoffs, to those that do not warrant further consideration.

1. Has feedback been provided to the originator of the rejected ideas?
2. Have ideas passed the common sense check? Has the analysis considered technical feasibility, timing, remaining service life and technology maturity?
3. Have ideas been categorized based on near term impact and investment amount?
4. Have operational values been considered such as logistics footprint, ability to generate sorties, and ability to meet operational objectives?
5. Did the cost analysis provide an estimate of the costs and savings associated with the Cost Reduction Initiative? Did the methodology:
    a. Define the scope of the analysis?
    b. Establish the estimating approach?
    c. Collect data?

d. Execute the cost model?
e. Evaluate results and perform sensitivity analysis?
f. Document the results?

6. Have measures of merit such as Return On Investment (ROI), Break-Even Point, (BEP) and Net Present Value (NPV) been utilized?

H. PLAN & IMPLEMENT

Prior to implementing cost reduction initiatives, develop a comprehensive plan. The objective is to provide a sound, executable foundation for realizing cost savings associated with initiatives. The R-TOC plan should make the business case for the initiative and establish an action plan for implementation.

1. Does the description of the initiative. Include the purpose, who, what, when, where, and how?
2. Have financial profile sheets been built?
    a. Comb charts
    b. Baseline Profile
    c. Initiative Profile
3. Has a milestone summary chart been built?
    a. Does it include key tasks, including both actions and schedules?

    b. Does it include tasks done inhouse and those done by external contractor support organizations?
4. Has the cost methodology been documented?
    a. Have the assumptions in the study been documented?
    b. Do the historical baselines include data sources, inflation adjustment, usage and maintenance requirements?
    c. Do projected costs & savings include a methodology overview, data sources, estimating models, and cost drivers?
5. Conduct a risk analysis.
    a. Life Cycle Risk - Is there enough service life and overall system population to warrant the change? Will the impacted system(s) be in the inventory for a sufficient time frame for the benefits to be realized?
    b. Technical Risk: Are there technology insertion or maturation efforts involving risk or a redesign? Has this initiative been proven on another program or commercially?

c. Schedule Risk: Are there scheduling issues or assumptions that make the likelihood of successful execution a higher risk?

d. Funding Risk: Are there funds other than those already budgeted/funded/ requested for this study necessary for successful execution?

e. Traceability Risk: How will cost avoidance be tracked to document savings?

6. Based on the risk analysis, is the implementation risk rated as low, medium, or high?

Back to Table of Contents

6. FOR MORE INFORMATION

Web Addresses

- **Air Force R-TOC Program**
  www.rtoc.drc.com
- **Defense Systems Affordability Council**
  www.acq.osd.mil/dsac/dsac.html
- **Air Force Total Ownership Cost**
  www.aftoc.tasc.com

Phone Numbers

- **Col "Scoop" Cooper, Director Air Force RTOC Program,**
  DSN: 425-6201
  Commercial (703) 588-6201
  Email: *cooperlh@af.pentagon.mil*

- **Lt Col Steve Cooper, Deputy Director Air Force R-TOC Program**
  DSN: 425-6203
  Commercial: (703) 588-6203
  Email: *coopersr@af.pentagon.mil*
  Commercial: (703) 696-4238

Pilot Programs:

- F-117
(937) 656-4273 DSN: 576-4273

- J-STARS
(781) 377-5725 DSN: 468-5725

- Spaced Based Infrared System
(310) 363-1807 DSN: 833-1807

- Next Generation Small Loader
(937) 255-2504 x3648 DSN: 785-2504

- F-16
(937) 255-6151 DSN: 785-6151

- C-17
(937) 255-1290 DSN: 785-1290

- Advanced Medium Range Air-to-Air Missile (AMRAAM)
(850) 882-3531 DSN: 872-3531

Pilot Program cont. :

- Airborne Warning and Control System (AWACS)
(781) 377-5517 DSN: 478-5517

- B-1B
(937) 255-3281 DSN: 785-3281

- Cheyenne Mountain
(719) 556-4367 DSN: 834-4367

- C/KC-135
(405) 736-7755 DSN: 336-7755

Installation Pilot Bases

Nellis AFB
Seymour - Johnson AFB
Mountain Home AFB
Ellsworth AFB

R-TOC Support Team

Dave Burnett.....Program Manager
Rick Seitz.....Task Lead
Carol Booth.....Systems Analyst
Marian O'Neil.....Analyst
Jeremy Rowland.....Sr. Technical Illustrator
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Back to Table of Contents